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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,290	12/31/2003	Nicholas P.R. Hill	59458US002	9188

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EXAMINER

SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/750,290

Applicant(s)

HILL ET AL.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-16,19-27 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 3-5,17,18,28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2-20-04

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-2,6-7,9-12,14-16,19-22,24-27,30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Hill US 2001/00006006 A1).

As to claim 1, Hill teaches a method for use with a touch sensitive device (paragraph 0006) comprising a touch plate to which a plurality of sensors are coupled (Fig. 6, items 26,31), the method comprising:

generating, in response to a touch to the touch sensitive device, sensor signals exhibiting dispersion (Fig. 9, item a, paragraph 0107);

correcting for the dispersion in the sensor signals to produce dispersion corrected signals (Fig. 9, item b, paragraph 0108);

determining a location of the touch using the dispersion corrected signals (Fig. 9, items c-d, paragraphs 0109-110);

reconstructing impulses representative of impulses generated by the touch to the touch sensitive device (Fig. 9, items e-f, paragraphs 0111-112); and

confirming the location of the touch using the reconstructed impulses (Fig. 9, item g, paragraph 0113).

As to claims 2,27 Hill teaches determining a dispersion of the touch plate (paragraphs 0003,0013,0015).

As to claim 6, Hill teaches determining a separation distance between the touch location and each of the sensors (Fig. 6, items 26,31);

developing, for each of the sensors, an inverse phase factor using the respective separation distances (paragraphs 0108-0109); and

applying the inverse phase factor to the sensor signals to reconstruct the impulses (paragraphs 0108-0113).

As to claims 7,9-11,22,24-25,30-32 Hill teaches confirming the location of the touch comprises assessing similarity of one or more features of the reconstructed impulses (paragraphs 0020-0022).

As to claim 12, Hill teaches computing an average of the reconstructed impulses; applying a scaling factor to the computed average of the reconstructed impulses to produce a scaled reconstructed impulse, the scaling factor selected to emphasize first arrival energy of the averaged reconstructed impulses; and comparing the scaled reconstructed impulse against a threshold to confirm the touch location as valid or invalid (paragraph 0067).

As to claim 14, Hill teaches a touch sensitive apparatus (paragraph 0006) comprising:

a touch plate (Fig. 6, item 24, paragraph 0102);

a plurality of sensors coupled to the touch plate, each of the sensors configured to sense bending waves in the touch plate and, in response to a touch to the touch plate, generate sensor signals (Fig. 6, item 26, paragraph 0102); and

a controller coupled to the sensors (Fig. 8, item 34), the controller correcting for dispersion in the sensor signals, determining a location of the touch using the dispersion corrected signals, and reconstructing impulses representative of impulses generated by the touch to the touch sensitive device, the controller confirming the location of the touch using the reconstructed impulses (Fig. 9, items a-g, paragraphs 0107-0113).

As to claim 15, Hill teaches the active buffer circuits respectively coupled to one of the sensors (Fig. 9, item 42, paragraph 0104).

As to claim 16, Hill teaches an excitation transducer coupled to the touch plate and configured to induce bending waves in the touch plate (Fig. 6, item 31).

As to claims 19-21, Hill teaches the controller determines a dispersion relation of the touch plate, the controller using the dispersion relation to reconstruct the impulses (Fig. 8, item 34, paragraph 0104).

As to claim 26, Hill teaches a touch sensitive device (paragraph 0006) comprising a touch plate to which a plurality of sensors are coupled (Fig. 6, items 26,31), the method comprising:

means for generating, in response to a touch to the touch sensitive device, sensor signals exhibiting dispersion (Fig. 9, item a, paragraph 0107);

means for correcting for the dispersion in the sensor signals to produce dispersion corrected signals (Fig. 9, item b, paragraph 0108);

means for determining a location of the touch using the dispersion corrected signals (Fig. 9, items c-d, paragraphs 0109-110);

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means for reconstructing impulses representative of impulses generated by the touch to the touch sensitive device (Fig. 9, items e-f, paragraphs 0111-112); and means for confirming the location of the touch using the reconstructed impulses (Fig. 9, item g, paragraph 0113).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 8,23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hill as applied to claim 7 above, and further in view of Kent (US 7,061,475 B2).

As to claim 8, Hill does not disclose confirming the touch location as valid in response to the similarity assessment achieving a threshold; and considering the touch location as invalid in response to the similarity assessment failing to achieve the threshold.

Kent teaches the touch location as valid in response to the similarity assessment achieving a threshold; and considering the touch location as invalid in response to the similarity assessment failing to achieve the threshold (Fig. 32(b), items 3216-3218, Col. 83, Lines 28-38).

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It would have been obvious to one of ordinary skill in the art to incorporate teachings of Kent into Hill system in order to provide redundancy (Col. 9, Lines 6-13 in Kent reference).

As to claim 23, Hill does not disclose the controller confirms the touch location as valid in response to the similarity determination achieving a threshold and verifies the touch location as invalid in response to the similarity determination failing to achieve the threshold.

Kent teaches the controller confirms the touch location as valid in response to the similarity determination achieving a threshold and verifies the touch location as invalid in response to the similarity determination failing to achieve the threshold (Fig. 32(b), items 3216-3218, Col. 83, Lines 28-38).

It would have been obvious to one of ordinary skill in the art to incorporate teachings of Kent into Hill system in order to provide redundancy (Col. 9, Lines 6-13 in Kent reference).

3. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill.

Hill does not disclose sensor signals are generated in response to a touch to a bezel or frame of the touch sensitive device, and confirming the location of the touch comprises confirming the touch to the bezel or frame as an erroneous touch.

However, it would have been obvious to one of ordinary skill in the art to sensor signals should not be generated in response to a touch to a bezel or frame of the touch sensitive device.

Allowable Subject Matter

4. Claims 3-5,17-18,28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 3,28 the major difference between the teaching of the prior art of record (Hill,Kent) and the instant invention is that reconstructing the impulses further comprises determining dimensions of the touch plate.

Claims 4-5 are dependent on claim 3.

Claim 29 depends on claim 28.

Relative to claim 17 the major difference between the teaching of the prior art of record (Hill) and the instant invention is that the sensors produce bending wave signals responsive to the induced bending waves; and the controller computes dimensions of the touch plate using the bending wave signals, the controller using the touch plate dimensions to reconstruct the impulses.

Relative to claim 18 the major difference between the teaching of the prior art of record (Hill) and the instant invention is that a plurality of active buffer circuits, each of the active buffer circuits respectively coupled to one of the sensors; and an excitation transducer coupled to the touch plate and configured to induce bending waves in the touch plate; wherein the controller is coupled to the sensors via the active buffer circuits and to the excitation transducer via a non-actively buffered connection.

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Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
12.12.06


RICHARD HJERPE
PATENT EXAMINER
ART UNIT 2600